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Probably in no other single aspect of mental activity of the feeble-minded are there so varied differences as in memory. Many are unable to remember the simplest words, while others have remarkable memories for special things, *e. g.*, calculation, playing musical instruments, etc. Jonckheere (11) reports two cases of remarkable memory. An imbecile boy examined by him could recognize and name in French or German the disks for a music box with which he played, although he could not read. In this case there was a memory of the arrangement of holes in the disk, or probably of the design of the inscription. Another feeble-minded boy, who entered the school at the age of $9\frac{1}{2}$ with only a German vocabulary, learned in $3\frac{1}{2}$ years French and the Flemish patois and can recite in Dutch. Many of the children of the Vaucluse School have been found to compare favorably with normal children in their memory for numbers and words (copying 50 figures and two sentences); but idiots and imbeciles do poorly in all three tests (2).

Four numerals can be immediately repeated by many feeble-minded, and some can give five or six (12). Wylie tested the visual memory by having children pick out 5 cards (containing colors, letters or forms) previously shown to them, from a number, with the following average results: form, 2.4 cards recognized; color, 2.4; letters, 2.6 (7). Similar results were obtained by Kuhlmann (13). The auditory memory was tested by repetition of six associated words, repetition of groups of sentences, and selection of five nonsense syllables, with the following results: average number of words given correctly, 3.8; words in sentences, 11; nonsense syllables, 2.1.

6. *Miscellaneous Observations.*—All authors agree that the notions of time and space are very difficult to teach the feeble-minded (Sollier, Demoor and Daniel, and Jonckheere). Time is much more difficult than space, and past time much harder than future (11).

Like other mentally underdeveloped people, bright colors are most often preferred. Music with its rhythm has a wonderfully dynamogenic effect, and in some schools it is being used, with excellent results, in classes for gymnastics and motor training.

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Psychical Selection. (*Empiriomonism in the Study of Psychics.*) A. BOGDANOFF. *Questions of Philosophy and Psychology* (Russian Vorprossy Phil. y Psychol.), May-June and September-October, 1904, pp. 335-379 and 485-519.

The author seeks to ascertain 'the direction of psychology, if *unity of experience* were in *principle* made its underlying basis.' His conception of empiriomonism he sums up in the following theses:

1. Dualism of experience is inadmissible as a principle. Despite their diversity, the elements of experience are in both spheres, the 'physical' and the 'psychical,' *the same—in themselves neither physical nor psychical; i. e., they are outside the pale of these determinations* (the thesis of empiriocriticism).

2. The 'physical' and the 'psychical' represent two ways of grouping the elements of experience: the psychical being experience organized *individually*; the physical, experience organized *socially* (the first thesis of empiriomonism).

3. Every *objective* (physiological) vital process has a parallel *subjective* one. This parallelism must be interpreted in the sense that the physiological life-process is the reflection of the subjective complex in the socially organized experience of living beings (second thesis of empiriomonism).

4. The progressive development of cognition leads to a harmoniously integrated, monistic organization of experience, whose immediate expression is *the organic unity of epistemological methods*. This unity we attain by subordinating the 'subjective' in experience to the 'objective,' by applying to the individually organized experience means elaborated in the sphere of the socially organized experience. In our time this tendency is manifested in the *idea of universality* attributed to the law of the conservation of energy (the thesis of energies).

Thus the author's problem is one of method, viz., the application of *psycho-energetics* in psychology. Now, the concept energy implies *commensurability* and *universal equivalence* of phenomena. As to the former, psychical phenomena are *magnitudes*—'intensive,' inasmuch as they exhibit more or less 'force'; 'extensive,' inasmuch as they are capable of associating with one another, thus making up the greater or smaller fullness of conscious life. Of course, they are not *exact* quantities of energy; but is not 'exactness' a relative term also in the other natural sciences? As to the requisite of equivalence, empiriomonism, by its second thesis, rises above it. Indeed, the psychical phenomenon and its concomitant physiological process can no more be regarded as two than the body, visually perceived, can be segregated from the same body, tactually perceived.

THE SCHEMA OF PSYCHICAL SELECTION.—From this view-point the individual experiences (*Erlebnisse*) are, with reference to the psychical system as a whole, either positive or negative; *i. e.*, they either increase or decrease the sum total of its energy. This formula embraces alike the data of biomechanics and of psychology. Psychically, the fluctuations of vitality are expressed in pleasure and pain, *i. e.*, in the so-called positive or negative 'affectional.' Indeed, all psychical life moves between these two poles of the affectional; and the almost tautological statement that 'pleasurable is whatever is sought after and painful whatever is avoided' may be said not only to underlie all applied psychology, but to express the whole process of 'psychical selection.'

The relation of this process to consciousness appears from defining the latter as 'the *province of coordinated psychic variations*,' for, the nature of psychic variations being determined by the sign of the affectional, it follows that *the whole field of consciousness is at once the field of psychical selection*. Thus, the process of psychical selection naturally rises to the rank of a *universal principle* in the investigation of life as the stream of inner *Erlebnisse*.

THE SCHEMA OF ASSOCIATION.—The elements of psychical experience

are connected by association, those of the physical world by the higher type of objective uniformity. The principle of psychical selection is now called upon to 'explain' this psychical connection as follows:

1. Association by contiguity takes place when A and B together occur in consciousness. But then they both are controlled by psychical selection, and form, therefore, *one system of energetic equilibrium*, whose relative fixity is determined by the *intensity of the affectional* (a fact underlying pedagogical methods).

2. The higher type of association, that by similarity, is grounded in mental *habitation*; the latter, again, is governed by psychical selection, thus: (a) the habitual complex recurs more easily; (b) its fixity is ever increasing. For, like the energetic process, psychical selection tends toward stable equilibrium, at the same time forming more extensive systems, with a resultant *average* affectional naturally small, but positive; and this accounts for the fact that (c) the affectional of the habitual complex inclines toward indifference, excepting cases with a negative affectional, where it passes into a positive one; for, in the sum total, psychical selection is positive. Instance the student of chemistry getting habituated to the smell of H_2S so as to find it in the end even agreeable.

From the foregoing the author infers *en passant* that the principle of psychical selection is broader than what he would call 'psychological Lamarckism,' *i. e.*, 'habitation' and 'exercise' (which play so important a part for Avenarius).

Now, the process of 'generalization' and 'discrimination,' this basis of knowledge, is possible only because the complex A occurs contiguously in more than one connection. In this repeated occurrence, whatever is common to the complexes is more acted upon by psychical selection than the 'individual' traits; the common becomes more conservative and its affectional more reduced, *i. e.*, a 'generalization' is realized. This process of generalization is at the same time an *association by similarity*. If A as the most-repeated combination has been abstracted from the less repeated B, C, etc., A is none the less associated with each one of them, and occurring, say, in A and B, 'tends' to call forth also its other combinations; one bird 'reminds' one of another bird.

The 'coldness' of knowledge, the relative indifference of the affectional in 'generalizations' and 'concepts,' is at once explained. Moreover, this 'coldness' underlies the logical 'law of identity': a high affectional indicates intense psychical selection, setting mental complexes in commotion, *i. e.*, changing their 'identity.'

3. Finally, the highest type of association, that by contrast or dissimilarity (or discrimination), is grounded in the 'rivalry' of mental complexes.

Psychical life exhibits two inseparably connected types: the image-complex (passive) and the will-complex (active attitude). The latter, as such, is *energetically negative* (= loss of energy¹); hence, whenever it dominates the direction of psychical selection is negative, and persists until harmony between the two complexes is established.

¹ This justifies the identification by some philosophers of impulse, will with sufferance.

And now the association in question. The sight of a black man provokes the image of a white man, but not of white paper; obviously, dissimilarity presupposes similarity. Let us then pursue a concrete illustration. The white are at war with the black. A white soldier, strayed off, seeks his way to safety; at a distance he perceives a silhouette; but is it of a white or a black man? Here ensues a rivalry of two images associated with opposite *impulses* (will-complexes), a 'wavering' attended with a negative affectional, a 'disagreeable' situation.

Upon analyzing the two images you find that they, having in common A (=human features), are already associated by similarity. But the one has yet the element B (white) and the other, C (black), and A and B has a will-complex different from that of A and C. Furthermore, in the course of the rivalry each will-complex accentuates the dissimilar elements to the neglect of A; and this is the fundamental trait of 'association by dissimilarity,' or of the 'form of discrimination.' It takes place when the images associated by similarity are at rivalry owing to the dissimilarity of their respective will-complexes. Indeed the image is always connected with some *will-complex*, 'scholastic amusement in hair-splitting' not excepted, for the 'word' is predominantly a *will-reaction*, so that, inasmuch as similar images are signified by dissimilar words, they are *eo ipso* associated with different will-acts.

All these considerations lead the author to regard 'psychology as the science of psychical (or associative) forms of experience that are *determined* by its variable contents.'

In his second article the author proceeds to show the practical applications of the principle of psychical selection.

The components of a psychical system are: (1) the *Erlebnisse* forming the raw material, distinguished as to quantity, quality (heterogeneous or homogeneous), or intensity; (2) the direction of psychical selection, positive or negative; and (3) the intensity of the affectional. An abundant material, heterogeneous and intense, with a perfectly balanced affectional is the ideal norm, the limiting abstraction toward which psychical development is progressing; while the variation of these moments, severally or jointly, determines psychic types.

The work of selection is only positive, for even negative selection, like the hammer that destroys only the unstable and frail, tends to remove whatever is vitally unimportant or detrimental to the system (*i. e.*, the negative while removing a negative becomes positive). In this crucible the psychical development receives its twofold coloring: it is 'realistic' (corresponding to the environmental combinations most repeatedly posited) and 'monistic' (predominance of harmoniously unified complexes). Furthermore, the positive selection proper, keeping consciousness wide awake, feeds the *creative activity of imagination*, and develops the will-power hardened by the negative process. Socially regarded, the ideal type would tend to reconcile, to harmonize, all the contradictions of his epoch, would be the *encyclopedic genius of his time* (a Faust).

Now vary the components. (a) Let the negative selection, *ceteris paribus*, be much below the positive; the result is a variety characterized

by the predominance of 'fancy' over realism, of eclecticism over monism, and by unstable will-power. Heine (himself typifying this variety) styles it the Hellenic type. This 'Hellenism' is in our time represented mostly by the 'artistic nature.'

(b) The negative selection is much above the positive. Here 'reality' (repeatedly posited environment) is colored intensely gloomy; the negative process, not powerful enough to eliminate it, derives with the help of the positive selection combinations from this reality which are themselves not real (such as ideal images of happiness). The resultant variety is characterized by 'utopism' instead of realism, but with a pronounced monistic tendency manifested in consistency between thinking and acting, and by an invincible will-power in the struggle for existence. This is the 'Hebrew' type portrayed by Heine. These two types are only distinguishable historically.

(c) A quantity of psychic material much below the maximum distinguishes the characters of every-day life, who, though analogous to the former, occupy a lower plane. If favored by circumstances they may become the 'heroes' of the 'crowd.' A Washington, also a Gladstone or a Lincoln, belong to this type.

Ordinarily, Heine's Hellenic and Hebrew types lose respectively in beauty and earnestness in proportion as the quantity of psychical material falls below the maximum. Instance the degenerate parasitic classes of a community, on the one hand, and the type produced by the Catholic convent, on the other.

Again, according as the positive or negative selection prevails there obtain Heine's *Philister*; in the one case caricaturing the Hellen, in the other the Hebrew.

Finally, on this narrow basis of scant psychical material there grows up the type of the 'specialist.' From the ordinary Philistine he differs only in part, notably as far as his specialty goes; beyond this there reigns a miserable incoherence and flat eclecticism of psychical masses. However, a highly intensified selection renders the development of this type monistic, though in a peculiar manner, viz., the specialist (of this higher type) views everything through the medium of his specialty. The merchant regards all human life from the view-point of exchange. J. Bentham, that child of the newly-born English capitalism, has based his whole philosophy upon the special ideal of the most profitable bargain with reality.

In conclusion the author illustrates the foregoing by analyzing a concrete case, Shakspear's Hamlet.

Hamlet belongs to the Hellenic type. His psychic system represents a dual organization: Hamlet the warrior by descent (instance his dexterity in fencing), and Hamlet the artist. Theoretically these two personalities coexisted; but when Hamlet is called upon to act we find him wavering, irresolute; the Hellenic lack of integrity, for which the predominance of positive selection (happiness) is responsible, comes to light. But then the work of negative selection, the harmonizing force of suffering, sets in, pushing Hamlet toward the 'ideal' type. He becomes an-

other man; his thirst for harmony passes into an active *will to create* harmony by punishing crime and restoring righteousness. Hamlet succumbs, but as conqueror: he leaves his place to Fortinbras, a man of known integrity. Thus, the essence of the tragedy is: the Hellenic soul through painful struggle and profound suffering (*i. e.*, through negative selection) attains to a higher form of integrity and perfection.

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The Limits of Genetic and of Comparative Psychology. MARY WHITON

CALKINS. *British Journal of Psychology*, January, 1905. Pp. 261-285.

This paper begins by distinguishing genetic from comparative psychology. Genetic psychology may or may not use the comparative method. Its distinctive feature is not its method, but that it treats its object as developing. This object is the conscious self. And development, as used here, is defined as 'the succession of more complex upon simpler states, or, conversely, of simpler upon more complex states of a unitary being.' 'Development, in the technical sense of evolutionary biology, can not possibly be predicated of conscious selves,' and heredity and natural selection have no possible application in such psychical development.

Turning to comparative psychology, the author discusses the 'continuity theory,' which holds consciousness to be a property of life, and the 'mechanistic theory,' which denies that organisms whose actions are unvaried reflexes are conscious. It is shown that neither has proved more than a possibility. 'Both agree in recognizing consciousness where there are adapted reactions.' Using this criterion, it will perhaps be found that all forms are conscious, and the field of comparative psychology 'is, after all, as wide as animal life.'

If we consider the nature of the consciousness of the different forms, the problem becomes more limited. "The minimal consciousness which an animal can be proved to have is the consciousness which accompanies the trial and error type of learning. . . . As parallel of the preliminary, random performances, there is no need to assume any save a sensational (and primitively affective) consciousness of the animal's environment and its own movements." The acquired reactions imply imagination, the animal reacts with purpose. Further, animals react only to concrete situations without analyzing them, they lack relational consciousness. And lastly, an animal, to be conscious at all, must be conscious of itself. But this does not mean that animals have attained such self-consciousness as reflective imitation involves.

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REVUE PHILOSOPHIQUE. March, 1905. *La régularité universelle du devenir et les lois de la nature* (pp. 225-251): W. M. KOZŁOWSKI. — Uniformity of nature underlies induction. Regularity is a projection of